

A CASE SERIES OF EXTRAPULMONARY TUBERCULOSIS MASQUERADING AS MALIGNANCY IN A TERTIARY CARE HOSPITAL

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Abstract

Background: Tuberculosis (TB) is a common infectious disease caused by *Mycobacterium tuberculosis*. In this case series, we discuss the incidence of extrapulmonary tuberculosis cases that clinically and radiologically mimics a malignant lesion. A total of 11 cases of extrapulmonary tuberculosis at various sites were reported at the department of pathology, Tirunelveli medical college, during a period of 2 years from 2019 to 2021. Among the 11 cases studied, 6 were male, and 5 were female. The age group of presentation varies between 20 to 77 years. All cases were clinically and radiologically diagnosed to have a neoplasm, and, in most cases, extensive surgeries were done. In this, 4 cases presented with gastrointestinal mass, 2 cases of genital tract lesions, remaining cases were breast mass, soft tissue mass, lesion in the maxillary sinus and a hard palate mass. In addition, all cases were histopathologic ally diagnosed as tuberculosis. Extrapulmonary tuberculosis cases are rising in developing countries, ascribed to the emergence of multi-drug resistance and an increasing number of immune-compromised individuals. Nevertheless, it remains one of the great mimickers in medicine, with non-specific clinical and radiological manifestations that can suggest numerous other disease entities, particularly malignancy. Hence, a high degree of suspicion must be held to avoid unwanted surgical modalities.

INTRODUCTION

Tuberculosis (TB) is a common infectious disease caused by *Mycobacterium tuberculosis*. According to WHO, tuberculosis is a leading cause of death due to a single infectious agent.^[1] It affects approximately 2.79 million people in India annually.^[2] The most common presentation of tuberculosis is a pulmonary infection, a major public health problem in India. The incidence of extrapulmonary tuberculosis is 14%. It can affect any organ in the body, such as lymphatics, gastrointestinal tract, Genito urinary tract, pleura, musculoskeletal system, and central nervous system.^[3]

Lymphadenitis is the most frequent form of extrapulmonary tuberculosis, usually occurring in the cervical region. Intestinal tuberculosis occurs due to swallowing mycobacteria in sputum, ingesting unpasteurised milk, or through hematogenous spread. The most common site is the ileocaecal region due to lymphoid aggregates.^[4] Pancreatic tuberculosis is uncommon, and its

incidence is less than 5 %, even in endemic regions.^[5] Brain Tuberculomas are the most common manifestation of brain TB due to hematogenous spread or by CSF extension.^[1] Intramuscular and subcutaneous TB is rare and occurs due to local spread from ruptured necrotic lymph nodes or by proximity to tuberculous osteomyelitis or arthritis.^[6]

Extrapulmonary tuberculosis usually manifests as a mass lesion and non-specific symptoms. Despite the availability of advanced imaging techniques, sophisticated laboratory tests, and increasing awareness, extrapulmonary TB are difficult to diagnose because of its protean manifestations,^[7] leading to unwanted patient referral to the oncologist and explorative surgeries.

In this case series, we analyse the incidence of extrapulmonary tuberculosis cases that clinically and radiologically mimics a malignant lesion.

CASE SERIES

Among 11 cases studied, 6 were male patients, and 5 were female. The age group of presentation varies between 20 to 77 years. All cases were clinically and radiologically diagnosed to have a neoplasm, and, in most cases, extensive surgeries were done. In addition, all cases were histopathologic ally diagnosed as tuberculosis.

Case 1: A 43-year-old female complained of abdominal pain, jaundice, vomiting, weight loss, and appetite for 6 months. Ultrasonography and computed tomography revealed an irregular and hypodense lesion of size 4x3 cm in the body of the pancreas, with dilatation of the bile duct. The PET scan showed intense FDG uptake at the lesion site. The patient was clinically diagnosed with carcinoma head of the pancreas and proceeded to explorative laparotomy with distal pancreatectomy, splenectomy and cholecystectomy. On gross examination, a well-circumscribed grey-white firm lesion measuring 3.2x 2x 2 cm with focal areas of haemorrhage and necrosis was seen in the posteroinferior surface of the pancreas. Microscopy revealed many granulomas composed of epithelioid histiocytes, rimmed lymphocytes, plasma cells, fibroblasts admixed with many Langhans type of giant cells and caseous necrosis. Diagnosis of chronic caseating granulomatous pancreatitis of tuberculous aetiology was made.

Case 2: A 52-year-old male complained of abdominal pain, constipation, hematochezia, and weight loss for 1 year. Imaging findings revealed a distal ileal growth infiltrating the sigmoid colon with mesentery deposits. Explorative laparotomy has proceeded with ileocecal resection and sigmoid colectomy. Gross examination showed an ulcer proliferative lesion of size 11x 7x 5cm in the distal ileum extending up to serosa and another lesion of size 5x4 cm in the sigmoid colon with multiple enlarged nodes in the mesentery. Histopathology revealed extensive caseating granuloma with epithelioid cells, many multinucleated giant cells, and lymphocytes in the ileal and sigmoid colon and nodes. A diagnosis of caseating granulomatous tuberculosis of the ileum and sigmoid colon with granulomatous lymphadenitis of the mesentery was made.

Case 3: A 77-year-old female complained of a non-tender ulcer in the hard palate and a foul smell in the lesion for 8 months. Imaging revealed a heterogeneous enhanced mass lesion in the hard palate. The patient has diagnosed with carcinoma hard palate, and a wedge biopsy was performed. Gross examination showed multiple grey-white soft tissue fragments of size 1x 0.8 x0.5 cm. microscopy showed hyperplastic stratified squamous epithelium with intense surface ulceration and collection of

epithelioid histiocytes forming granuloma cuffed by lymphocytes, plasma cells and many Langhans type of giant cells. Histopathological diagnosis of granulomatous lesion of tuberculous aetiology of hard palate was made.

Case 4: A 47-year-old male presented with complaints of swelling in the paraumbilical region for the past 1 year. Clinical examinations ruled out the possibility of a paraumbilical hernia. Ultrasonogram revealed a soft tissue enhancing mass in the paraumbilical region of 3x2 cm, and a possibility of spindle cell sarcoma was given. The patient was clinically diagnosed with soft tissue sarcoma, and wide local excision was done. Gross examination showed a skin-attached soft tissue mass measuring 3x2x2 cm with grey-white and focal yellow areas on the cutsection. Microscopy revealed fibro collagenous fatty tissue infiltration with granulomas and Langhans multinucleated giant cells. A histopathological diagnosis of granulomatous tuberculosis was made.

Case 5: A 20-year-old female complained of abdominal distension, abdominal pain, weight loss, and appetite for 1 year. Imaging findings revealed a left complex ovarian mass with a poorly visualised left ovary. Peritoneal fluid analysis showed an inflammatory smear and was negative for malignancy. Laparotomy was done, and the ovarian mass was removed along with the necrotic area from the parietal peritoneum. Gross showed fibrofatty soft tissue mass in the left ovary of size 2.2x 1.5x1 cm, with yellowish nodules in the cut surface. Microscopy of both ovarian mass and a necrotic area of the parietal peritoneum revealed features of tuberculosis, and a histopathological diagnosis of granulomatous tuberculosis of the ovary was made.

Case 6: A 44-year-old female with a history of bleeding per vagina, dysuria, and abnormal vaginal discharge for 2 years. Imaging findings showed an infiltrating lesion of 2x2 cm in the ectocervical region extending to the vagina and rectum. The patient was clinically diagnosed with carcinoma cervix stage IIA. Cervical biopsy, Rectal biopsy and biopsy lower 1/3rd of the vagina were taken. Microscopy of the lower 1/3rd of the vagina and rectum showed a collection of granuloma and Langhans type of giant cells and a diagnosis of chronic granulomatous inflammatory lesion of tuberculosis. Histopathology of the cervix showed chronic inflammatory pathology.

Case 7: A 39-year-old male presented with a history of right-side abdominal pain, vomiting, weight loss, and appetite. Computed tomography revealed an infiltrative heterogenous mass in the caecum infiltrating the serosa, with multiple mesenteric lymphadenitis. The patient was diagnosed with carcinoma caecum, and right hemicolectomy and ileostomy were done. Grossly 10x 9.5x 3 cm circumferential grey-white mass was made out in

the caecum. Microscopically there was extensive mucosal ulceration, with submucosa showing multiple granulomas composed of epithelioid histiocytes and Langhans type of giant cells with caseous necrosis in the caecum. The patient was diagnosed with a caseating granulomatous tuberculous lesion of the cecum with tuberculous lymphadenitis.

Case 8: A 46-year-old male complained of abdominal pain, abdominal distension, and mass abdomen and fistula in the anterior abdominal wall for 7 months. The patient was clinically diagnosed with a mesenteric tumour extending to the anterior abdominal wall. Laparotomy with resection and anastomosis of the small bowel was done. Grossly the portion of jejunum and ileum showed a grey-white soft tissue mass measuring 4x3x3cm with a grey-white necrotic cut surface, and skin attached anterior abdominal mass showed surface ulceration with a grey-white firm cut surface. Microscopically the features are consistent with tuberculosis, and the diagnosis of tuberculous inflammatory pathology of the small intestine was made.

Case 9: A 45-year-old male with complaints of nasal obstruction, foul-smelling nasal discharge and anosmia were admitted to the ENT department. Imaging revealed a soft tissue density lesion in the maxillary sinus with contrast enhancement extending into the left nasal mucosa. The patient was clinically diagnosed to have sinonasal carcinoma, and an excision was done. Microscopy showed granuloma with epithelioid cells and Langhans type of giant cells with fibrosis and caseous necrosis. In addition, a histopathology report of tuberculosis of sinonasal mucosa was given.

Case 10: A 35-year-old female with complaints of recurrent gradual onset non-tender firm to hard swelling in the upper outer quadrant of left breast for the past 6 years. The mammogram revealed a BIRADS 3 lesion. 2 years back; she had a similar presentation; an excision was done, and a biopsy revealed a fibrocystic lesion with epitheliosis. Because of recurrence at the same site, underlying malignancy was suspected, and a wedge biopsy was done. Gross- multiple fibrofatty soft tissue mass measuring 3x3x3cm. Microscopy confirmed the presence of tuberculosis, and a histopathological diagnosis of granulomatous mastitis was made.

Case 11: A 30-year-old male had a history of right scrotal swelling for 4 months. A firm-to-hard mass was palpable in the right testis. Imaging showed a heterogeneously hypoechoic ill-defined left intratesticular mass. The following differentials were thought of as non-seminomatous germ cell tumours and lymphoma. Orchidectomy was done. Gross- soft to firm testicular tissue measuring 7 × 5 × 3 cm, with a cut section showing a greyish yellow mass

measuring 4x3cm and congested and edematous epididymis with focal grey-white areas. Histopathological examination showed numerous caseating granuloma and Langhans giant cells. The diagnosis of tuberculous epididymal-orchitis was made.



Figure 1: CT abdomen showing Irregular hypodense lesion in body of pancreas simulating a pancreatic carcinoma.



Figure 2: Gross picture of pancreatic lesion in the postero-inferior surface.

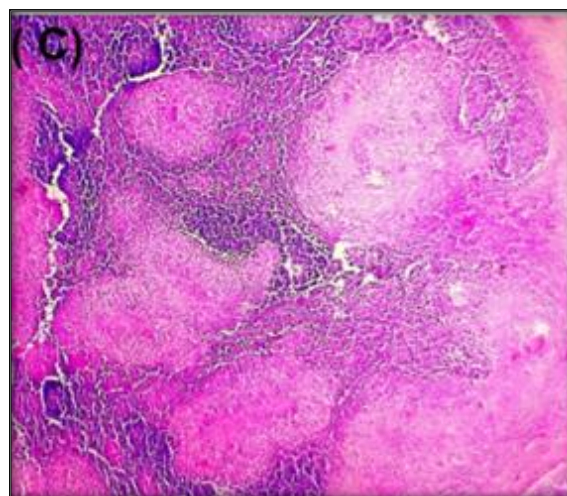


Figure 3: H & E section of pancreatic lesion showing areas of caseous necrosis (4X)

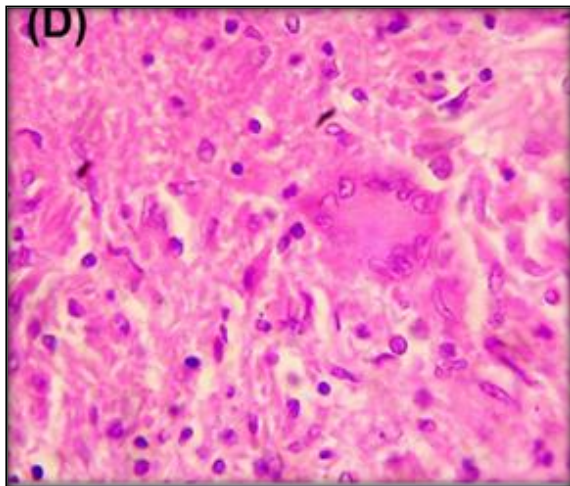


Figure 4: H & E section showing granuloma composed of multinucleated Langhans cells(40X)

MATERIALS AND METHODS

According to WHO classification criteria, Extrapulmonary tuberculosis is an infection by *Mycobacterium tuberculosis* that affects tissues and organs outside the pulmonary parenchyma. The main risk factors are age, female sex, concurrent HIV infection and other comorbidities like chronic renal disease, diabetes mellitus or immunosuppression.^[3] The mean age of EPTB patients is higher than for pulmonary TB.^[8]

Atul et al 2019 study show Extrapulmonary tuberculosis is a diagnostic problem, especially when unusual organs such as the pancreas are involved because it is biologically protected from *Mycobacterium tuberculosis* infection because of the pancreatic enzymes. So, the spread occurs mainly through hematogenous or contagious pancreatic lymph nodes.^[5]

The study by Shilpa et al 2018, states that female genital tuberculosis is mostly asymptomatic or presents with misleading non-specific symptoms like dysmenorrhea, amenorrhea, abnormal vaginal discharge, weight loss etc, and radiological findings may mimic malignancy. The definitive diagnosis lies in the histopathological examination, identifying tubercle bacilli by microbiological examination, including culture and polymerase chain reaction (PCR), and a medical line of treatment manages most cases.^[9]

Raja et al 2017, concluded that Intestinal TB typically presents with vague clinical, radiographic, and histopathologic findings that mimic malignancy and inflammatory bowel disease. The most common symptom will be Chronic abdominal pain along with anorexia, fatigue, night sweats, diarrhoea, or blood in the stool and bowel obstruction is the most common complication. A broad differential diagnosis should be kept in mind when evaluating a patient with vague symptoms and non-specific test results, also paying close attention to patient demographics and risk factors.^[10]

Tuberculous mastitis may be of primary aetiology or secondary to pulmonary tuberculosis. Clinical examination usually fails to differentiate between carcinoma and tuberculosis. Shinde et al. 1995 in his study found the factors in favour of tuberculosis are a young age, married, multiparity, and lactation. Nodular TB of the breast resembles fibroadenoma or carcinoma, disseminated TB resembles inflammatory carcinoma, and sclerosing tuberculosis is cirrhotic carcinoma. Mammography is also unreliable. Open biopsy is the most reliable examination, followed by a full course of antituberculous chemotherapy is suitable for small lesions, whereas large lesions necessitate simple mastectomy.^[11]

Other rare sites in our study were hard palate, soft tissue mass, and sin nasal mucosa, which were difficult to diagnose clinically as tuberculosis. Hence diagnosis requires a high index of suspicion. Delayed diagnosis of extrapulmonary forms is frequent and entails increased morbidity and mortality.

CONCLUSION

A high degree of suspicion is necessary to diagnose extrapulmonary tuberculosis, especially in cases where the infection is endemic. Conventional diagnostic techniques provide variable degrees of sensitivity and specificity. Hence the Knowledge of the pathophysiology of TB in each organ and its imaging features can increase the detection rate in high-risk populations. A simple, non-invasive procedure like needle aspiration will get the diagnosis in most cases. Early and prompt treatment will prevent the occurrence of complications.

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